

PATENT COOPERATION TREATY

PCT

NOTIFICATION OF THE RECORDING
OF A CHANGE(PCT Rule 92bis.1 and
Administrative Instructions, Section 422)

From the INTERNATIONAL BUREAU

To:

GRIFFITH HACK
Patent & Trade Mark Attorneys
GPO Box 1285K
Melbourne, VIC 3001
AUSTRALIE

Date of mailing (day/month/year)

16 October 2000 (16.10.00)

Applicant's or agent's file reference

FP12417

IMPORTANT NOTIFICATION

International application No.

PCT/AU00/00149

International filing date (day/month/year)

03 March 2000 (03.03.00)

1. The following indications appeared on record concerning:

☐

the applicant

☐

the inventor

☒

the agent

☐

the common representative

Name and Address

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2. The International Bureau hereby notifies the applicant that the following change has been recorded concerning:

☐

the person

☐

the name

☒

the address

☐

the nationality

☐

the residence

Name and Address

GRIFFITH HACK
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3. Further observations, if necessary:

The new agent's address on the Demand has been considered as a change under Rule 92bis. In case of disagreement, the International Bureau should be notified immediately.

4. A copy of this notification has been sent to:

☒

the receiving Office

☐

the designated Offices concerned

☐

the International Searching Authority

☒

the elected Offices concerned

☒

the International Preliminary Examining Authority

☐

other:

The International Bureau of WIPO
34, chemin des Colombettes
1211 Geneva 20, Switzerland

Authorized officer

C. Cupello

Facsimile No.: (41-22) 740.14.35

Telephone No.: (41-22) 338.83.38

Form PCT/IB/306 (March 1994)

003586833

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference JMC:PN:FP12417	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416).	
International Application No. PCT/AU00/00149	International Filing Date (day/month/year) 3 March 2000	Priority Date (day/month/year) 4 March 1999
International Patent Classification (IPC) or national classification and IPC Int. Cl. 7 A61B 5/00; H04B 7/00		
Applicant SASSE, Anthony Corry et al		

- This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
- This REPORT consists of a total of 3 sheets, including this cover sheet.
☒ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of 4 sheet(s).

3. This report contains indications relating to the following items:

- | | | |
|------|-------------------------------------|---|
| I | <input checked="" type="checkbox"/> | Basis of the report |
| II | <input type="checkbox"/> | Priority |
| III | <input type="checkbox"/> | Non-establishment of opinion with regard to novelty, inventive step and industrial applicability |
| IV | <input type="checkbox"/> | Lack of unity of invention |
| V | <input checked="" type="checkbox"/> | Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement |
| VI | <input type="checkbox"/> | Certain documents cited |
| VII | <input type="checkbox"/> | Certain defects in the international application |
| VIII | <input type="checkbox"/> | Certain observations on the international application |

Date of submission of the demand 28 July 2000	Date of completion of the report 4 July 2001
Name and mailing address of the IPEA/AU AUSTRALIAN PATENT OFFICE PO BOX 200, WODEN ACT 2606, AUSTRALIA E-mail address: pct@ipaustalia.gov.au Facsimile No. (02) 6285 3929	Authorized Officer Mr. SWAYAM CHINTAMANI Telephone No. (02) 6283 2202

I. Basis of the report**1. With regard to the elements of the international application:***

- ☐ the international application as originally filed.
- ☒ the description, pages 1-17, as originally filed,
pages , filed with the demand,
pages , received on with the letter of
- ☒ the claims, pages , as originally filed,
pages , as amended (together with any statement) under Article 19,
pages , filed with the demand,
pages 18-21, received on 29 June 2001 with the letter of 29 June 2001
- ☒ the drawings, pages 1-4, as originally filed,
pages , filed with the demand,
pages , received on with the letter of
- ☐ the sequence listing part of the description:
pages , as originally filed
pages , filed with the demand
pages , received on with the letter of

2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language which is:

- ☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of the translation furnished for the purposes of international preliminary examination (under Rules 55.2 and/or 55.3).

3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

4. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages
- ☐ the claims, Nos.
- ☐ the drawings, sheets/fig.

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).**

* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17).

** Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**1. Statement**

Novelty (N)	Claims 1-21	YES
	Claims	NO
Inventive step (IS)	Claims 1-21	YES
	Claims	NO
Industrial applicability (IA)	Claims 1-21	YES
	Claims	NO

2. Citations and explanations (Rule 70.7)

The following documents identified in the International Search Report have been considered for the purposes of this report:

D1 US 4075632
D2 WO 91/16850
D3 US 5682149
D4 EP 420177
D5 US 4531526

Novelty (N) Claims 1-21

Claims 1-21 meet the criteria set forth in PCT Article 33(2) for novelty. The prior art published before the priority date does not disclose an apparatus for physiological monitoring of a remote subject as claimed in the independent claims 1 and 13.

Inventive Step (IS) Claims 1-21

The claimed invention is not obvious in the light of any of the cited documents nor disclosed in any obvious combination, nor would the claimed invention be obvious to a person skilled in the art in the light of common general knowledge by itself or in combination with any of these documents.

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THE CLAIMS DEFINING THE INVENTION ARE AS FOLLOWS:

1. Apparatus for physiological monitoring of a remote subject including:

5 a base station having a transmission means for transmitting a reference signal; and

at least one physiological monitoring probe connectable to said subject, said physiological monitoring probe or probes having:

10 receiver means for receiving said reference signal;

monitoring means for monitoring said subject and generating a condition signal containing information related to a condition or conditions of said subject;

15 modulation means for modulating said reference signal to produce a modulated reference signal containing said information contained in said condition signal; and

20 passive retransmission means for passively retransmitting said modulated reference signal to said base station;

wherein said base station has means for receiving said modulated reference signal, and means for demodulating said modulated reference signal to obtain said information related to one or more conditions of said subject so that one or more conditions of said subject can be monitored at said base station, and wherein said physiological monitoring means includes intermediate signal means for generating an intermediate signal derived by combining said condition signal with a fixed or varying frequency signal before modulating said reference signal.

2. Apparatus as claimed in claim 1, wherein said receiving means and passive retransmission means are a passive radio transponder.

3. Apparatus as claimed in either claim 1 or 2, wherein said monitoring means includes a physical

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parameter transducer.

4. Apparatus as claimed in either claim 1 or 2,
wherein said monitoring means includes a biological
5 electrode.

5. Apparatus as claimed in any one of claims 1 to 4,
wherein said intermediate signal means is operable to
convert analog and/or digital signals from the monitoring
10 means to an intermediate signal which is used to modulate
a radio frequency signal received by a passive radio
transponder, so that the transponder automatically
retransmits a modulated signal which contains information
relating to the condition of the subject.

15 6. Apparatus as claimed in any one of claims 1 to 6,
wherein said passive radio transponder may use a plurality
of intermediate signals to modulate a radio frequency
reference signal.

20 7. Apparatus as claimed in any one of the preceding
claims, wherein said base station includes analog and/or
digital outputs for outputting data.

25 8. Apparatus as claimed in any one of the preceding
claims, wherein said base station is connectable to a
computer network, and operable to receive input and output
data via said computer network.

30 9. Apparatus as claimed in any one of the preceding
claims, including encryption means so that said apparatus
can transmit and/or receive data in encrypted form.

35 10. Apparatus as claimed in any one of the preceding
claims, wherein said condition signal includes a
synchronous or an asynchronous data signal.

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11. Apparatus as claimed in any one of the preceding claims, wherein said base station is operable to use either a fixed frequency reference signal or vary the frequency or phase of the reference signal by a
5 continuously varying signal having an instantaneous value that determines the respective instantaneous frequency or phase.

12. Apparatus as claimed in claim 11 in which the
10 continuously varying signal is a Pseudo-Random Binary Sequence.

13. A method of physiological monitoring of a remote subject including:
15 transmitting a reference signal from a base station to at least one remote physiological monitoring probe connected to a subject;
monitoring said subject and generating a condition signal containing information related to a
20 condition or conditions of a said subject;
generating an intermediate signal derived by combining said condition signal with a fixed or varying frequency signal;
modulating said reference signal to produce a
25 modulated reference signal containing said information contained in said condition signal;
passively retransmitting said modulated reference signal from said biological monitoring probe to said base station; and
30 demodulating said modulated reference signal to obtain said information related to the condition or conditions of said subject so that the condition or conditions of said subject can be monitored at said base station.

35 14. A method as claimed in claim 13, wherein said fixed or varying frequency signal includes a plurality of

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sub-carrier signals.

15. A method as claimed in claim 13 or 14 further including converting analog and/or digital signals from a
5 subject monitoring means to the intermediate signal which is then used to modulate a radio frequency signal received by a passive radio transponder, whereby the transponder automatically retransmits a modulated signal containing information relating to the condition of the subject.
- 10 16. A method as claimed in any one of claims 13 to 15, including transmitting data from said base station over a computer network, and/or inputting data over a computer network.
- 15 17. A method as claimed in any one of claims 13 to 16, including encrypting data to be output by said base station, and/or encrypting said modulated reference signal.
- 20 18. A method as claimed in any one of claims 13 to 17, including transmitting said condition signal as a synchronous or an asynchronous data signal.
- 25 19. A method as claimed in any one of claims 13 to 18, including fixing the frequency of the reference signal or varying the frequency or phase of the reference signal by a continuously varying signal having an instantaneous value that determines the respective instantaneous
30 frequency or phase.
20. A method as claimed in claim 19 in which the continuously varying signal is a Pseudo-Random Binary Sequence.
- 35 21. A method as claimed in any one of claims 13 to 20, wherein said method is used to monitor sleep apnoea.

PATENT COOPERATION TREATY

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INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference FP12417	FOR FURTHER ACTION see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.	
International application No. PCT/AU00/00149	International filing date (<i>day/month/year</i>) 3 March 2000	(Earliest) Priority Date (<i>day/month/year</i>) 4 March 1999
Applicant SASSE, Anthony Corry et al		

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 4 sheets.

☐ It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

- a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

- b. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international search was carried out on the basis of the sequence listing:

☐ contained in the international application in written form.

☐ filed together with the international application in computer readable form.

☐ furnished subsequently to this Authority in written form.

☐ furnished subsequently to this Authority in computer readable form.

☐ the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

☐ the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

2. ☐ Certain claims were found unsearchable (See Box I).

3. ☐ Unity of invention is lacking (See Box II).

4. With regard to the title, ☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

5. With regard to the abstract, ☒ the text is approved as submitted by the applicant

☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the drawings to be published with the abstract is Figure No. 2

☒ as suggested by the applicant.

☐ None of the figures

☐ because the applicant failed to suggest a figure

☐ because this figure better characterizes the invention

INTERNATIONAL SEARCH REPORT

International application No.

PCT/AU00/00149

A. CLASSIFICATION OF SUBJECT MATTERInt. Cl. ⁷: A61B 5/00; H04B 7/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

A61B 5/IC; H04B 7/IC, 17/IC; H03C 1/IC, 3/IC

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

WPAT, JAPIO: remote, wireless, radio, RF, monitor, detect, diagnose, measure, record, test, reference, carrier, retransmit, relay, repeat, rebroadcast, transponder, transceive, transmit, send, sent, emit

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 4075632 A (BALDWIN et al) 21 February 1978 Column 1 line 64 - column 2 line 40, Figures	All Claims
X	WO 91/16850 A1 (STIFTUNG HASLER-WERKE) 14 November 1991 Abstract, Figure 1	"
X	US 5682149 A (HOFMAN) 28 October 1997 Abstract	"

☒ Further documents are listed in the continuation of Box C
 ☒ See patent family annex

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search

21 March 2000

Date of mailing of the international search report

28 MAR 2000

Name and mailing address of the ISA/AU

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INTERNATIONAL SEARCH REPORT

International application No.

PCT/AU00/00149

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 420177 A1 (ARGUMENS GmbH) 3 April 1991 Abstract, figure 4	All claims
X	US 4531526 A (GENEST) 30 July 1985 Column 2 line 29 - column 3 line 63	"

INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
PCT/AU00/00149

This Annex lists the known "A" publication level patent family members relating to the patent documents cited in the above-mentioned international search report. The Australian Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

Patent Document Cited in Search Report			Patent Family Member				
US	4075632	NONE					
WO	91/16850	CH	680161	EP	479989		
US	5682149	EP	743510	NL	1000369		
EP	420177	DE	3932428				
US	4531526	AR	231886	AU	86586/82	BR	8204643
		CA	1189166	EP	72003	JP	58070399
		MX	152359				
END OF ANNEX							